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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : G07F 7/08, 19/00	A1	(11) International Publication Number: WO 00/57368 (43) International Publication Date: 28 September 2000 (28.09.00)
(21) International Application Number: PCT/FI00/00017 (22) International Filing Date: 12 January 2000 (12.01.00) (30) Priority Data: 990641                      23 March 1999 (23.03.99)                      FI (71)(72) Applicant and Inventor: VALTANEN, Jarkko [FI/FI]; Aurorankatu 15 B 19, FIN-00100 Helsinki (FI). (74) Agent: KANGASMÄKI, Reijo; Finnish Patent Consulting FPC, Hermiankatu 14, FIN-33720 Tampere (FI).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report. In English translation (filed in Finnish).	
(54) Title: METHOD FOR INCREASING THE EFFICIENCY IN TRADE  <p>The diagram illustrates a communication system. On the left, a box labeled 'X; X1' represents the customer's data processor. A line labeled 'V' connects it to a box labeled 'A' (the server). A double-headed arrow labeled 'C' is between 'X; X1' and 'A'. A line labeled 'Y' also connects 'X; X1' to 'A'. From 'A', a line goes to a box labeled 'T' (service supplier) and another line goes to a circle labeled 'M' (substitute). A double-headed arrow connects 'A' and 'M'.</p>		
(57) Abstract  The invention relates to a method for increasing efficiency in trade, wherein a customer, in order to obtain a product, a service, and/or the like, uses his/her own data processor (X) to establish over a communications line a contact (Y) with a server (A) which is at least in data transmitting communication with a service supplier (T), whereafter, as the connection has been established, selects, confirms and/or makes a payment for a desired product, service, and/or the like, whereafter the server (A), after the verification of personal, communications, credit information and/or the like, confirms that the purchase transaction has been conducted correctly and supplies the customer with a substitute verifying at least the authenticity of the purchase transaction. The customer's data processor comprises a portable communicator (X1), which is capable of establishing communication and which is supplied with a substitute (V) produced by the server (A) as the connection (Y) is established and preferably provided with a customer-specific identifier, for storing the substitute in the memory of the customer's communicator (X1) in electronic form.		

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Method for increasing the efficiency in trade.

5 The invention relates to a method for increasing  
efficiency in trade, wherein a customer, in order to  
obtain a product, a service and/or the like, uses  
his/her own data processing apparatus to establish  
contact through a communications line with a server  
which is at least in a data transmitting communication  
with a service supplier, whereby after the connection  
10 is established, chooses, confirms and/or pays a fee  
for a desired product, service and/or the like,  
whereafter the server, after verification of personal,  
communications, credit information and/or the like,  
confirms the correctness of a trade transaction and  
15 transmits to the customer a substitute verifying at  
least the authenticity of the trade transaction.

The type of principle described above is working  
nowadays in ticket sales e.g. for various traffic  
20 companies or e.g. service suppliers organizing enter-  
tainment events, whereby the customer may establish  
contact by his/her personal computer over the internet  
with the server of a service supplier and reserve, pay  
and, on the other hand, also receive a receipt giving  
25 right to the actual ticket. At present, the exploita-  
tion of an actual service being bought, such as a  
ticket enabling admission to an entertainment event,  
requires however that the customer go and pick up the  
reserved ticket in advance. A crucial drawback in this  
30 type of activity is the fact that the customer must  
first of all go and pick up the actual ticket and  
second of all that the service supplier must alterna-  
tively either mail the ticket to a customer or, on the  
other hand, keep queuing even those customers who have  
35 reserved a ticket in advance, which is why the quality  
of customer service suffers unreasonably merely as a  
result of two-stage ticket sales.

On the other hand, the DE application document 196 34 169 or the US Patent 5,239,480 discloses a system comprising separate self-service terminals which are connected by a closed net (US 5,239,480) or e.g. by a modem (DE 196 34 169) with certain servers, e.g. with organizers of various sporting, theatrical, musical or the like events. Each terminal is first of all provided with equipment required with a purchase transaction, as well as with printers, such that the customer is able to choose and pay for the tickets for a desired event from sources connected to the net and to print the same for himself/herself to gain admission to the event in question. First of all, this solution involves the problem that this type of system, e.g. ATM machines, is very expensive to set up and maintain as it requires a truly massive configuration, in which each terminal is linked to the servers of all event organizers that have joined the system. Thus, first of all, the customer has quite a limited practical possibility of choosing various events, since, in practice, it is not very easy to link a substantial number of sources to a certain closed system, which is why this particular solution is mostly applicable in a comparatively restricted environment. In addition, the customer is of course always forced to use a terminal connected to the system. Hence, if it is desirable to make this type of network as customer friendly as possible, such terminals should be distributed over a very extensive area. Thus, especially people living in sparsely populated areas are in a totally unequal position compared to those living in population centres, in which the system may in fact be implemented with a certain degree of success.

It is an object of the present invention to provide a method which offers a decisive improvement regarding the above problems and, thus, to substantially raise the available prior art. In order to achieve this

object, a method of the invention is principally characterized in that the data processor of a customer comprises a portable communicator capable of establishing telecommunications, which is supplied with a substitute produced by a server as the connection is established and provided with a customer-specific identifier, for storing the substitute in the memory of the customer's communicator in electronic form.

The method of the invention provides an essential benefit in terms of simplicity, operating reliability, and usefulness in most diverse connections and applications. The method of the invention can be applied just as well in connection of actual ticket sales as e.g. in the sales of various products. Another essential benefit offered by the method of the invention is that anyone is able, e.g. by means of a personal GSM telephone or through e.g. a so-called pocket computer equipped with similar data communications, to perform all necessary purchase transactions, i.e. to select, confirm, and preferably also make a payment e.g. for a service or event of interest, whereafter the server produces a substitute, or e.g. a ticket to the selected event, directly into the memory of a customer's GSM telephone or the like. Thus, first of all, it is no longer necessary to have any type of closed currently existing network in communication with certain service suppliers, but in this context it is always possible to utilize the widest available net, or e.g. the internet, as such. Therefore, the customer has also the widest possible range of service suppliers at his/her disposal. As a further preferred application of the method, it is beneficial for a service supplier to check the identifier of a physical substitute produced for a customer by using e.g. an automatic reader which, after verifying the authenticity of a substitute held by the customer, enables the completion of a transaction, or e.g. the admission to a show.

The non-independent claims directed to a method disclose preferred embodiments for a method of the invention.

5 The invention will be described in detail the following specification while reference is made to the accompanying drawings, in which

10       figs. 1a-1c       show by way of example a few optional solutions for operating principles regarding the supply of a service, and

15       figs. 2a-2c       show by way of example a few preferred optional operating principles regarding the use of a service.

20 The invention relates to a method for increasing efficiency in trade, wherein a customer, in order to obtain a product, a service, and/or the like, uses his/her own data processor X to establish over a communications line a contact Y with a server A which is at least in data transmitting communication with a service supplier T, whereafter, as the connection has  
25 been established, selects, confirms and/or makes a payment for a desired product, service, and/or the like, whereafter the server A, after the verification of personal, communications, credit information and/or the like, confirms that the purchase transaction  
30 on has been conducted correctly and supplies the customer with a substitute verifying at least the authenticity of the purchase transaction. The customer's data processor comprises a portable communicator X1, which is capable of establishing communication and  
35 which is supplied with a substitute V produced by the server A as the connection Y is established and preferably provided with a customer-specific identi-

fier, for storing the substitute in the memory of the customer's communicator X1 in electronic form.

5 In a further preferred application of the method, the substitute stored in the customer's communicator X1 while making use or the like of the acquisition of a product, a service, and/or the like is checked by means of an automatic reader B, the data transmitting communication between the communicator X1 and the  
10 reader B at least in a data transmitting contact with the server A and/or the service supplier T being used for verifying authenticity of the substitute V for enabling the completion of a commercial transaction, such as the delivery of a purchased article or admis-  
15 sion anywhere the customer is entitled to by the payment.

In a preferred embodiment, the portable communicator X1 comprises a cellular telephone, such as a GSM-,  
20 NMT-, satellite and/or the like telephone, the substitute V transmitted by the server A being stored in a memory included therein. In a preferred embodiment, the substitute V transmitted by the server A is stored in the basic memory of a mobile phone, on a SIM-card,  
25 on an add-on memory card, and/or the like.

In a further preferred embodiment, the communication link comprises the use of an open communications network, such as the Intranet, Internet, a modem link  
30 or the like.

In another preferred embodiment, a substitute transmitted by the server A is delivered to and stored in the memory of a customer's personal communicator X1 in  
35 a mode produced by a concealing system, such as in an encrypted or the like mode.



In reference to figs. 1a-1c, which particularly depict by way of example a few optional operating principles regarding the acquisition of a service, fig. 1a illustrates a solution in which a customer uses  
5 his/her mobile or cellular phone X1 to establish a contact over the server A with the service supplier T, and possibly also with a financial institution or the like M enabling a payment transaction to proceed. The solution shown in fig. 1b differs from the above in  
10 the sense that the server A is included in a substantially integrated fashion in the service supplier's T permanent hardware. In the above solutions, it is possible to transmit data e.g. between the mobile telephone X1 and the server A by using optionally e.g.  
15 infrared, LPRS-, or the like communication C. In this context, the LPRS-communication refers to so-called close-range radio signal technology, currently under intensive development. Furthermore, fig. 1c depicts a solution alternative to those described above in the  
20 sense that the customer's mobile phone X1 is used for a direct communication with e.g. a personal computer PC, which is further linked, e.g. over the Internet, with the actual server A, which is in a further communication over a corresponding net with the  
25 service supplier T and/or the financial institution M.

Referring further to the exemplary operating principles 2a-2c representing the exploitation of a service, fig. 2a depicts a solution, wherein a customer uses  
30 e.g. his/her own cellular telephone X1 to establish a communication with the server A either by calling Y or by using the above-mentioned LPRS-communication C, the server checking/receiving the customer's substitute V from the customer's cellular phone. As far as the  
35 service supplier T and the financial institution M are concerned, the solution shown in fig. 2a complies with a principle corresponding to the above figure 1a, and respectively, fig. 2b complies with a principle

corresponding to the above figure 1b. Respectively,  
fig. 2c illustrates an alternative solution, wherein  
the substitute V present in the customer's mobile  
phone X1 is transmitted/checked by the service supp-  
5 lier T and/or the server A through the LPRS-, infrared  
communication C or the like between the above-men-  
tioned devices.

It is obvious that the invention is not limited to the  
10 examples disclosed or described above, as it can be  
subjected to a multitude of variations within the  
basic concept thereof. Naturally, all future portable  
devices with communication capabilities are relevant  
within the basic concept of the invention, i.e. when  
15 the customer establishes contact with the server or  
the like of a service provider, which, after the  
purchase transaction, transmits an identified substi-  
tute to the memory of the customer's device, whereby  
the customer is able to directly exploit the purchased  
20 service. On the other hand, by virtue of the invention  
it is possible to store not only so-called ticket  
information but also most diversified other documents  
e.g. on the SIM-card of a mobile or cellular telepho-  
ne, such as e.g. personal data, authorizations and, in  
25 a further developed version, also e.g. ID documents,  
passports, driver's licenses, etc.

Claims

1. A method for increasing efficiency in trade, wherein a customer, in order to obtain a product, a service, and/or the like, uses his/her own data processor (X), comprising a portable communicator (X1) capable of setting up a telecommunication link, to establish over a communications line a contact (Y) with a server (A) which is at least in data transmitting communication with a service supplier (T), whereafter, as the connection has been established, selects, confirms and/or makes a payment for a desired product, service, and/or the like, whereafter the server (A), after the verification of personal, communications, credit information and/or the like, confirms that the purchase transaction has been conducted correctly and supplies the customer with a confirmation verifying at least the authenticity of the purchase transaction, characterized in that a substitute (V), such as an admission ticket or the like, produced by the server (A) during the connection and enabling the exploitation of an acquired product, service, and/or the like, is delivered to the customer for storing the same in the memory of the customer's communicator (X1) in electronic form.

2. A method as set forth in claim 1, characterized in that the substitute (V) stored in the customer's communicator (X1) while making use or the like of the acquisition of a product, a service, and/or the like is checked preferably by means of an automatic reader (B), the data transmitting communication between the communicator (X1) and the reader (B) at least in a data transmitting contact with the server (A) and/or the service supplier (T) being used for verifying authenticity of the substitute for completing of a commercial transaction, such as the delivery

of a purchased article or admission anywhere the customer is entitled to by the payment.

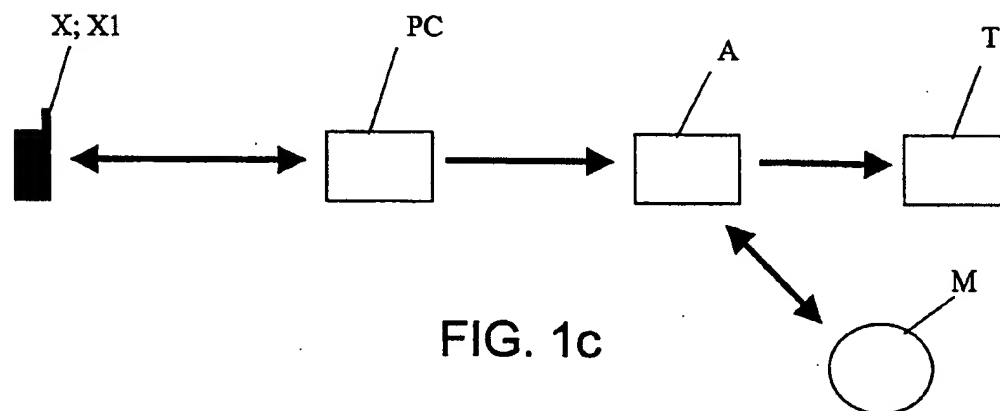
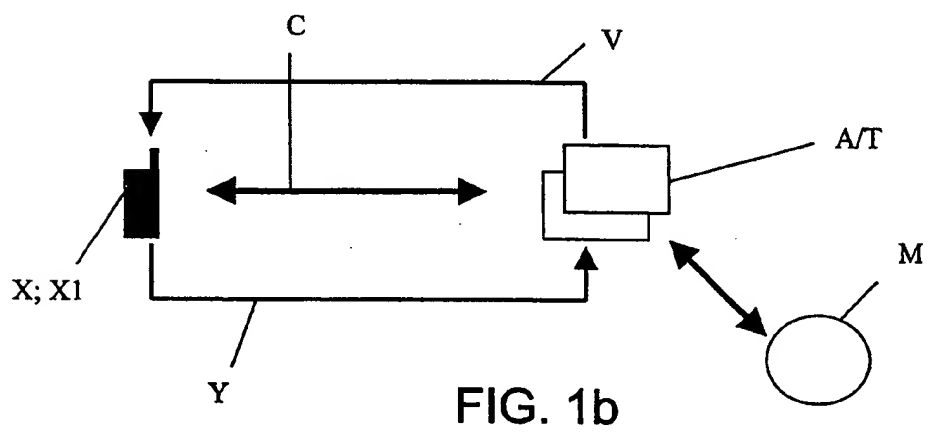
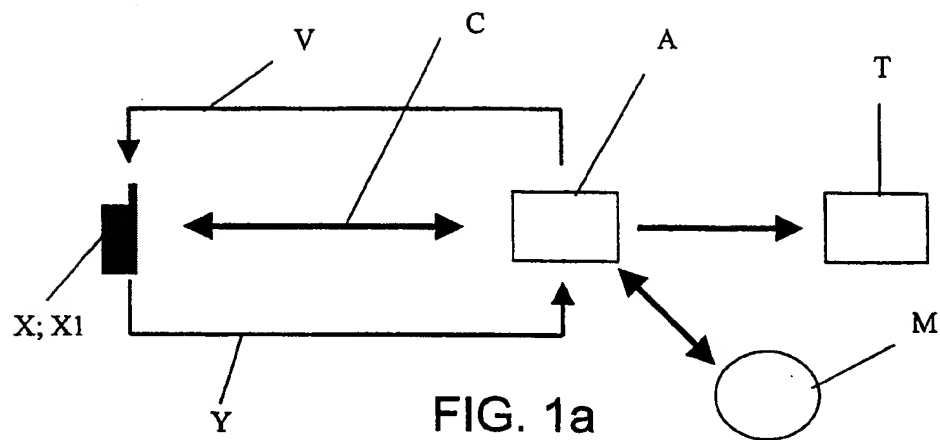
5           3.           A method as set forth in claim 1 or 2,  
wherein the portable communicator (X1) comprises a  
cellular telephone, such as a GSM-, NMT-, satellite  
and/or the like telephone, the confirmation transmit-  
ted by the server (A) being stored in a memory  
10           included therein, **characterized** in that the substitute  
(V) transmitted by the server (A) is stored in the  
basic memory of a mobile phone, on a SIM-card, on an  
add-on memory card, and/or the like.

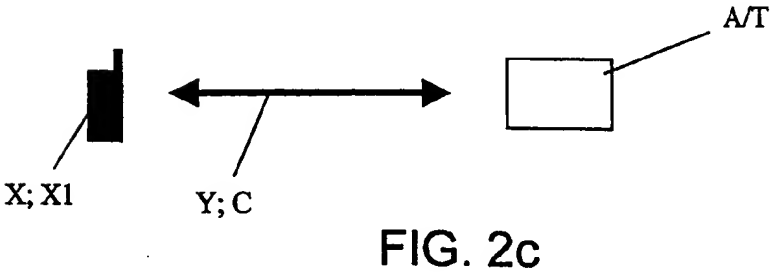
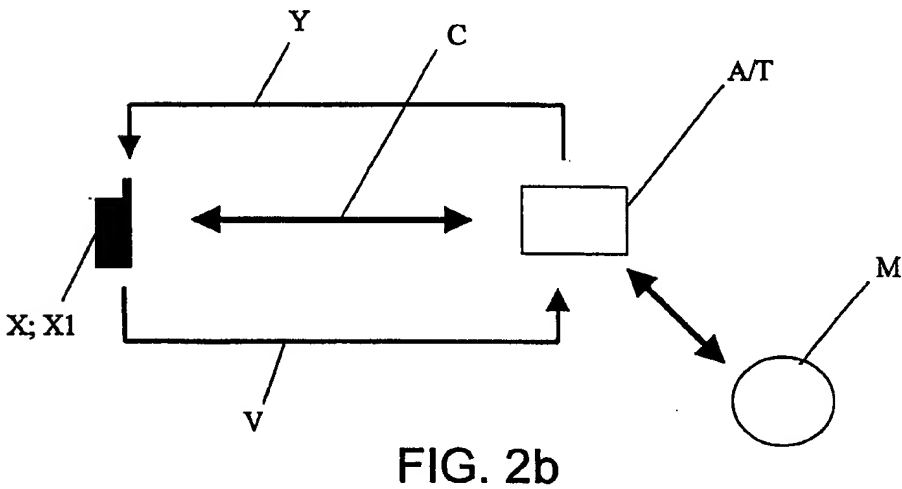
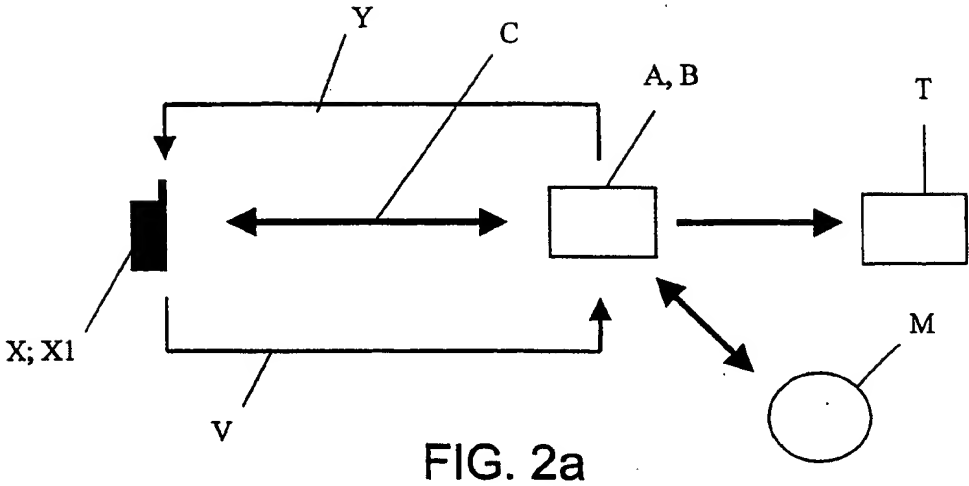
15           4.           A method as set forth in any of the preceding  
claims 1-3, **characterized** in that the data communica-  
tion link comprises an open communication network,  
such as the Intranet, Internet, modem connection, or  
the like.

20           5.           A method as set forth in any of the preceding  
claims 1-4, **characterized** in that the substitute (V)  
transmitted by the server (A) is delivered to and  
stored in the memory of a customer's personal com-  
municator (X1), such as a mobile phone or the like, in  
25           a mode produced by a concealing system, such as in an  
encrypted or the like mode.

30           6.           A method as set forth in any of the preceding  
claims 1-5, **characterized** in that the substitute (V)  
transmitted by the server (A) is provided with a  
customer-specific identifier.

1/2





## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00017

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G07F 7/08, G07F 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9909502 A1 (MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD), 25 February 1999 (25.02.99), whole document --	1-6
X	WO 9632700 A1 (AU-SYSTEM), 17 October 1996 (17.10.96), page 2, line 9 - line 25, claims 1-3, 6-8,11-13,21 --	1-6
X	EP 0848343 A2 (HITACHI, LTD.), 17 June 1998 (17.06.98), column 3, line 4 - line 25, figures 1-4 --	1-6
X	WO 9411849 A1 (VATANEN, HARRI, TAPANI), 26 May 1994 (26.05.94), claim 7 --	1-6



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

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Date of the actual completion of the international search

16 June 2000

Date of mailing of the international search report

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00017

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9847116 A1 (TELEFONAKTIEBOLAGET LM ERICSSON), 22 October 1998 (22.10.98), page 7, line 1 - line 13; page 8, line 9 - line 19; page 26, line 5 - page 27, line 9 --	1-6
X	WO 9745814 A1 (VAZVAN, BEHRUZ), 4 December 1997 (04.12.97), figure 1, claims 1,2 --	1-6
X	EP 0713198 A2 (HITACHI, LTD.), 22 May 1996 (22.05.96), column 15, line 1 - line 11, figures 1, 2, claims 1,6-8 --	1,2,4-6
P,X	EP 0950968 A1 (MATSUSHITA ELECTRICAL INDUSTRIAL CO., LTD.), 20 October 1999 (20.10.99), column 5, line 17 - line 40; column 72, line 46 - column 73, line 7, figures 1,2B, claims 1,3,21,23,48,133,191 -- -----	1-6



# INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/FI 00/00017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9909502 A1	25/02/99	AU 8648498 A EP 0950968 A	08/03/99 20/10/99
WO 9632700 A1	17/10/96	AU 3943795 A EP 0784715 A EP 0958556 A JP 10508904 T NO 974626 A SE 506506 C SE 9501347 A	06/06/96 23/07/97 24/11/99 02/09/98 13/10/97 22/12/97 12/10/96
EP 0848343 A2	17/06/98	JP 10171887 A	26/06/98
WO 9411849 A1	26/05/94	AT 159602 T DE 69314804 D,T EP 0669031 A,B SE 0669031 T3 ES 2107689 T FI 925135 A FI 934995 A GR 3025393 T NO 951814 A	15/11/97 12/02/98 30/08/95  01/12/97 12/05/94 12/05/94 27/02/98 09/05/95
WO 9847116 A1	22/10/98	AU 7094398 A	11/11/98
WO 9745814 A1	04/12/97	FI 962553 A FI 970767 A FI 971009 A FI 971248 A	25/11/97 20/10/97 26/04/97 26/04/97
EP 0713198 A2	22/05/96	JP 8147500 A US 5754654 A	07/06/96 19/05/98
EP 0950968 A1	20/10/99	AU 8648498 A WO 9909502 A	08/03/99 25/02/99